MYRMECIA

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MYRMECIA

CONTENTS

President's Report 1
Vice President's Report 2
New members 2
Books available for review 3
Entomology around Australia
Northern Territory 3
Australian Capital Territory 4
Queensland 7
Victoria 8
Western Australia 10
New South Wales 12
The postgrad patch 15
New publications 17
Entomology in the news 18
Coming Events 20
Australian Geographic Society: fundraiser for invertebrates 22

COPY DEADLINE FOR NEXT ISSUE

Materials for publication in the November2010 issue of Myrmecia are due by Friday, October 7 2010. Please submit contributions via fax, email or snail mail.

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Cover. The cover for this year's *Myrmecia* features an illustration of the Water Scorpion, *Laccotrephes tristis*, by Nadia Waters. Nadia's drawing was awarded second prize in the Student Section of the 2009 AES Illustration Competition.

PRESIDENT'S REPORT

The final cut....

I gather that my last report was somewhat long and perhaps a bit over the top. I will keep this epistle to the true believers short and all too sweet. In a sort of parody of that Pink Floyd classic (now that does date me), someone "…had the nerve to make the final cut."

Yes 'The Division' in CSIRO, and with it the last named Entomological institution in the country, has gone. It will of course be replaced with something big, new and shiny. We all no doubt look forward to the new name and "… some smile in reassurance"? Before folk go off and bare their naked feelings on this; no doubt with much weeping, whaling and gnashing of teeth; one can spin this matter another way. It is of course a great opportunity…or some such cliché.

As I have pointed out in previous rants my Institution lost its afore named department years ago. We now have more people working on and with insects than ever before. I see no reason why the nameless new division will not make great contributions to the study of insects. It and our other institutions of higher learning will have to.

As was brought home very clearly at the recent IUPAC meeting in Melbourne, we have to produce more food in the next few years to feed ourselves than we have throughout our entire history – and that from a Monsanto scientist that was once a climate change sceptic. Ironic that at a time when we will need agriculture to perform great feats and we will need plant breeders, pathologists, entomologists and the like, we appear to be shutting the institutions and programs that work on these areas down. What is the cliché we use for this…a challenge?

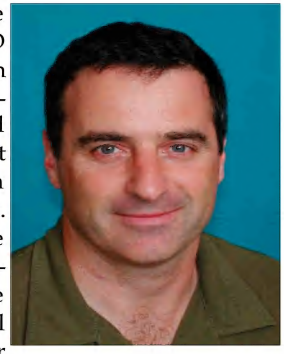
Despite appearances, I am an optimist, otherwise I would have torn "…the curtain down" ages ago. We have some very clever people in this country that have done, and continue to do, great things in vital research and development areas. No I am not having "…a big hallucination"! Our researchers just need, from what masquerades as management, some true nurturing and support to enable them to fly "… high in clear blue skies".

I leave it there with apologies to Roger Waters and I definitely will not sell my story to Rolling Stone. Look what happened to that general….HaHa!?

PS for those younger folk not familiar with the group I can thoroughly recommend them, much better than that over-rated entomologically named group that was big at around the same time and when I was teenager (sigh).

Myron ZALUCKI
PRESIDENT

VICE PRESIDENT'S REPORT



July 2010 marks the first month that CSIRO hasn't had a Division with Entomology somewhere in its title, and the first full month that we have been lead by a female Prime Minister. I am sure that these events are entirely coincidental. In case you are wondering what to call us now, the name for the merged Entomology and Sustainable Ecosystems Division has not yet been announced. Importantly, our email addresses won't change.

This quarter your Vice President has been busy establishing on-line merchant facilities to link our members, website and bank. This has proved more challenging than I first thought, with our bank requiring complex and time-consuming application and vetting processes which are not yet complete. More soon on this topic.

As well, I have been working with Murray Upton, Beth Mantle (Collection Manager ANIC), and Anne Hastings on a new edition of the blue book "Methods for Collecting, Preserving and Studying insects…". The Society published the fourth edition of the Methods in 1991, it sells well, and we have almost run out of our stocks. The new edition will integrate more information on collecting for DNA sequence analysis, and the more complex permitting and regulatory environment we now have. We are hoping to have the new edition available for sale at the Conference in September, so bring your cash and credit cards.

While on the topic of our upcoming Conference in Perth (26-30 Sept.), Kylie Anderson, author of *Myrmecia*'s popular Postgrad Patch section, is coordinating new postgraduate member activities at the Conference. Kylie is planning a postgrad dinner on Monday night the 27th, a student membership discount at the conference, and a skills development workshop for postgraduates on the Thursday morning (30th). These activities are sponsored by the Society and will become a permanent feature of the Conference in the future. Look to the Conference Website (www.aes2010.org), and Postgrad Patch, for more details.

Don't forget that the 2011 conference is a joint one with the *Entomological Society of New Zealand* joint meeting with the New Zealand Entomological Society in Christchurch, during the week of 29th August 2011. Check the website of the New Zealand Entomological Society (http://www.ento.org.nz/meetings.htm) for more details. Please put this important Australasian entomological event in your calendar.

David YEATES
VICE PRESIDENT

NEW MEMBERS

The Society is pleased to welcome a very healthy batch of new members. If you are nominating new members, could you please remind them that they need to include a few notes on their background and entomological interests with the nomination form?

Trevor Lambkin is with DEEDI in Brisbane, working on control of insect pest species.

Kate Muirhead, now a post-doctoral fellow at the University of Adelaide, is working in Andy Austin's laboratory; Kate's PhD was on the biosystematics and biology of the *Cotesia* falvipes complex of wasps.

Dalva Luis Queiroz, whose interests are in biocontrol of pest species.

Mark Harvey, at the Western Australian Museum, is well known to most of us for his extensive work on Australian arachnids of various kinds and particularly pseudoscorpions and spiders.

Mark Blackett, who is employed by the Victorian Department of Primary Industries to work on morphological and molecular systematics and identification of Victoria insects; he has a background of studies on the evolution of parthenogenesis in grasshoppers and stick insects, population genetics and impacts of climatic stress in fruit flies, among other areas of interest.

Sara Ceccarelli, gained her PhD at James Cook University, Townsville, for a study on salticidant mimicry systems, after which she joined the Crozierlab, participating in several projects on ants, including a molecular phylogeny of *Polyrhachis*, and development of microsatellite primers for the bulldog ant, *Myrmecia brevinoda*; she is now working at the Instituto de Biologia at the Universidad Nacional Autonoma de Mexico in Mexico City, studying braconid wasps, molecular phylogenetics and biogeography of a neotropical genus, *Notiospathius*.

New retired members

Roger Grund's interests are in Lepidoptera, mainly Rhopalocera, in biology, taxonomy, conservation and photography.

Joy Rodrigues who worked at the Mysore State Coffee Research Station in India, subsequently migrating to Australia where she taught secondary level science subjects until retirement; Joy began working as a volunteer on Hemiptera at the South Australian Museum with Gordon Gross, and continues to contribute there.

New student member

My-My Huynh is a fulltime student at Flinders University.

Alice WELLS
HONORARY SECRETARY

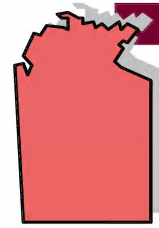
BOOKS AVAILABLE FOR REVIEW

The society has had a number of requests recently for book reviews. CSIRO publishing has a few titles coming out in the coming months :

- A Guide to Beetles of Australia (http://www.publish.csiro.au/nid/21/pid/6322.htm)
- A Guide to the Katydids of Australia (http://www.publish.csiro.au/nid/21/pid/6341.htm)
- Spider Silk: Evolution and 400 Million Years of Spinning, Waiting, Snagging, and Mating (http://www.publish.csiro.au/nid/21/pid/6383.htm)

If you would like to review one of these copies, please email smbroughton@agric.wa.gov.au.
Sonya BROUGHTON
Myrmecia Editor

ENTOMOLOGY AROUND AUSTRALIA



NORTHERN TERRITORY

CSIRO Sustainable Ecosystems – Tropical Ecosystems Research Centre

Ben Hoffmann reports that the yellow crazy ant management program in NE Arnhem Land, a collaboration between Dhimurru Aboriginal Corporation, CSIRO and Rio Tinto Alcan, won the inaugural NAIDOC Caring for Country Award in Melbourne on 9 July. This project led to the yellow crazy ant being eradicated from 22 sites covering a treatment area of 246 ha, and the ant is believed to be eradicated from another 14 sites that await assessment. Full ecological recovery has also been documented from 17 sites within 12 months post-treatment.

Department of Natural Resources, Environment, the Arts and Sport, Biodiversity Conservation Division

There's a change in direction for **Chris Palmer**, who has moved from studying animals with 6 legs to those with none. Twenty-four of the thirty-five invertebrates currently listed as threatened in the NT occur in central Australia, and almost all of these are land snails. Chris is now surveying for many of these endemic species, and will be for the next 12 months or so, increasing their known distribution with a view to re-assessing their threatened species status and to inform landscape management procedures.

Museum and Art Gallery of the Northern Territory

Michael Braby is also working on land snails, and is about to head off for the Territory Top End annual snail muster. He will be surveying for land snails in the southern Victoria River District over 12 days during July as part of a broader study which seeks to document the diversity of camaenid land snails associated with limestone-dry rainforest patches in the Top End.

The overarching aim is to elucidate their taxonomy, phylogenetic relationships and biogeographic patterns, assess their distribution and conservation status, and develop conservation management plans for the most threatened species and their ecological communities.

Northern Australia Quarantine Strategy

NAQS entomologists **Stacey Anderson** and **Glenn Bellis** visited the Museum Zoologicum Bogoriense and the Indonesian Centre of Agricultural Biotechnology and Genetic Resource Research and Development insect collections in West Java to look for exotic pest species not represented in Australian insect collections. Both collections had specimens of interest, some of which were photographed for subsequent uploading onto PaDIL.

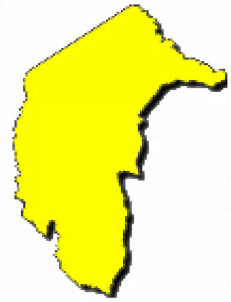
While in Indonesia, Glenn also participated in some training of plant protection staff in West Sumatra in the conduct of surveys and creation of pest lists. Participants were very keen, helpful and grateful for the assistance.

The population of crazy ants near Nhulunbuy in north-eastern Arnhemland provided an opportunity for **Mary Finlay-Doney** and **Tony Postle** to refine the monitoring system used by NAQS to detect incursions of this ant along our northern coastline. A range of different baits and traps were trialled and now they look forward to the statistical analyses required to clarify the system best suited to finding vagrant populations of crazy ants in remote areas.

Chris PALMER

NT Regional Councillor

AUSTRALIAN CAPITAL TERRITORY

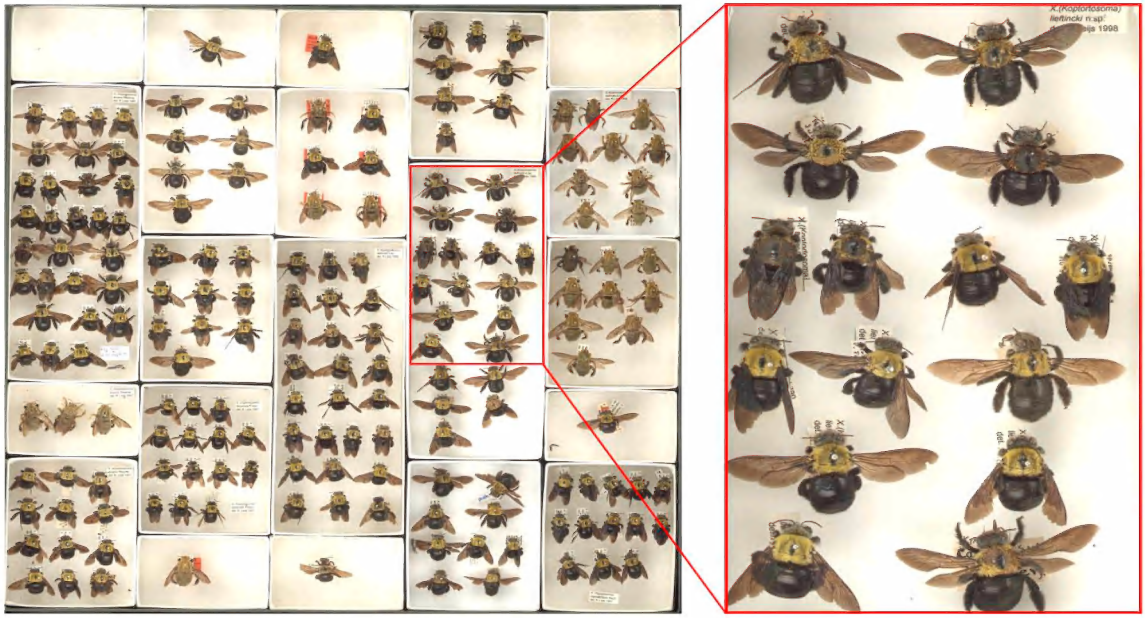


Australian National Insect Collection (ANIC)

The big news for ANIC entomologists recently was the announcement that CSIRO Entomology is being merged with CSIRO Sustainable Ecosystems (previously known as the Division of Wildlife and Ecology). The two Divisions will combine to form a much larger organisation, whose name has not yet been announced.

Management and scientific staff are working hard to ensure a smooth transition to the new structure, which should allow the daily work of ANIC to continue as normal. To mark this change, Entomology staff gathered on June 30th to celebrate CSIRO's achievements in entomology, and were joined by many old friends, including past Chiefs **Max Whitten**, **Jim Cullen** and **Joanne Daly**.ANIC recently took delivery of two new pieces of imaging equipment. The first is a Visionary Digital™ imaging system, which can produce high quality photographs of individual specimens at very high resolution and good depth of field, from either single or composite layered images. The other is a SatScan™ digital imaging system, which can automatically photograph a whole drawer of specimens at very high resolution. The system uses a moving camera to capture separate images of small sections of the drawer, and then stitches them together to form a single image of the whole drawer.

The results will eventually be available for viewing over the internet, and users will be able to examine an image of a drawer of specimens, zoom in on a high resolution image of a single unit tray or an individual specimen, and annotate the image with text or drawings. These images will assist with loan requests, collection maintenance, and perhaps even virtual curation of parts of the collection.



A drawer of bees photographed with the SatScan™ digital imaging system. Left, the whole drawer; right, zoomed in close-up of a unit tray. (Photo Natalie Banks).

On a related subject, **Chao-Dong Zhu** from Beijing visited to work on the establishment of a virtual research institute involving ANIC and the Institute of Zoology, Chinese Academy of Sciences, under a Sir Frederick McMaster Fellowship. The two institutions are developing greatly enhanced web-based communication systems, including remote microscopy and a collaborative network for videoconferencing, chat rooms, and interactive sharing of documents. Two pilot projects are being used to develop these systems, namely a study of the role of Australian bees as pollinators, and the sharing of DNA sequences to support the phylogenetic study of parasitic wasps.

In the Diptera laboratory, **Bryan Lessard** has completed and submitted a manuscript describing some new species of *Scaptia* (Tabanidae), and is workworking on his phylogeny of the family in preparation for presenting a paper at the International Congress of Dipterology in Costa Rica in August. **David Yeates** and **Leigh Nelson** are also preparing papers for the Congress, and will take the opportunity to do some collecting on the same trip. David Yeates recently took part in the regular TRIN Science Forum, at which PhD students and Postdoctoral Fellows presented results of their research, took a course in media training, and discussed plans for future research activities. ANIC coleopterists celebrated the publication of Volume 2 of *Handbook of Zoology* (*Coleoptera*). This new volume includes over 100 chapters reviewing the systematics of various beetle families, with many of those chapters written or co-written by **John Lawrence** and **Adam Slipinski**, with contributions from **Ainsley Seago** and **Hermes Escalona**. Adam and his team are making good progress on the Australian Coccinellidae. A large paper on the genus *Diomus* was published

recently, and descriptions of another 30 species are in preparation, with the help of visitor Hong Pang. **Rolf Oberprieler** featured in the *Canberra Times* in June, with a story about the discovery of a fossil weevil from the Talbragar fossil site near Gulgong NSW. The yet unnamed specimen is the first fossil weevil from Australia, and with its Jurassic vintage of about 150 million years, is among the oldest in the world.

Anita Lyons led an intensive three-day Bee Diagnostics workshop for six AQIS staff, to train them in the identification of native and exotic bees and some of their pests, including mites, fungal diseases, and the small hive beetle.

The thrips laboratory has been unusually quiet, since **Laurence Mound** was away for two months visiting London, Frankfurt and Halle, particularly to look at material of the genus *Scolothrips, which* are predators of leaf-feeding mites in many parts of the world. Desley Tree made another of her regular visits to continue work on a new Lucid key to the Australian Thripinae.

Bruce Halliday has started work on revising and updating the on-line checklist of mites of Australia, which forms part of the ABRS *Australian Faunal Directory*. Work should start very soon on establishing or revising catalogues of a series of other animal groups, including several orders of insects, with funding support from the Atlas of Living Australia.

The Lepidoptera laboratory has been busy as usual. Visitors included **Vedia Yazgin**, PhD student from LaTrobe University, who spent two weeks looking at the common brown butterfly *Heteronympha merope merope*. Vedia is measuring morphometric variation in wing characters, specifically looking for evidence of changes in morphology over time. Other visitors included **Cathy Young** of the Tasmanian Museum and Art Gallery, looking at Geometridae, **Rob Lachlan** from the Gold Coast, studying Pacific area Lycaenidae, **Julie Morgan** from Moruya, New South Wales, who is compiling information for a guide to the moths of the south coast, and **Paul Zborowski**, to photograph and identify moths from a variety of families.

Marianne Horak travelled to Mackay prepare a large collection of Lepidoptera for shipping, and to organise its transport to Canberra. The collection was donated by the late Ken Sandery, and features rich collections from the relatively little-studied Mackay area. The 137 drawers of moths included very useful additions to a number of species for which ANIC previously only had very small numbers of specimens. Work has begun on incorporating this valuable material into the main collection. Work on the scribbly-gum moths of the genus *Ogmograptis* is nearing completion. It will include descriptions of 11 new species, and will document a previously-unknown type of insect-plant interaction. **Ted Edwards** has almost finished work on description on the new brachypterous species of Hepialidae, which he collected recently at the top of Mt Kosciuszko.

Beth Mantle, **Olivier Bethoux**, and **Rolf Oberprieler** travelled to Melbourne to take delivery of a reference collection of forest insects from CSIRO Forestry and Forest Products, and took the opportunity to visit the Museum of Victoria to pick up some collections for return to Canberra.

Stephen Cameron attended the 4th International Congress on Phthiraptera in Turkey, and the conference of the Korean Society of Applied Entomology in Jinju, where he gave a plenary lecture on DNA diagnostics. Stephen also visited the Korean National Institute of Biological Resources, where the national reference collection of biological specimens was established three years ago. The Institute is young but growing quickly, and houses collections of plants, animals, and fungi in magnificent new specialised buildings designed for both education and research.

Bruce HALLIDAY

ANU

Nelson Simbiken from PNG has started a PhD at the ANU working on feeding and biology of scale insects of grape vines. **Wahida Othman** has returned to Malaysia to finish writing her PhD thesis on the control mechanisms of salivary glands of *Teleogryllus commodus* and *Gastrimargus musicus*.

Trudi WHARTON
ACT Regional Councillor

QUEENSLAND

North Queensland

DEEDI Cairns

Graham Teakle is currently managing the Cairns Entomology Laboratory while **Jane Royer** is working for DAFF in Canberra. **Mark Stanaway** is nearing completion of his PhD, with his exit seminar scheduled to be delivered in the next month.

JCU , School of Public Health

In late July, **Scott Ritchie**, **Deb Eastop** and **Petrina Johnson** attended the annual meeting for the Bill and Melinda gates project 'Grand Challenges in Global Health Initiative Project' to eliminate dengue, at the Spices Hidden Vale Resort Near Gatton. Discussions revolved around achievements over the last five years and planning of future directions of the project. Petrina reports the highlight of the meeting was the evening outdoor barbeque, where it was just five degrees. **Tamara Ball** has handed in her PhD thesis and is now employed as a research officer with a new CSIRO project investigating alternative control measures for *Aedes aegypti*. **Chris Paton** has joined the team as a research assistant.

School of Marine and Tropical Biology

Kylie Anderson visited JCU Townsville to discuss population genetic analyses with **Zengqiang Qian** of the Sociogenomics Research Group. Zeng has been researching various aspects of social structure in ants, and has just successfully completed his exit seminar.

School of Biological Sciences (BIOL), The University of Queensland

In early June, **Meron Zalucki** went to Washington DC for the summer Governing Board meeting of the Entomological Society of America. On his way back, Meron paid a visit to the ACIAR project team in Samoa for a week. In early July, Meron attended the IUPAC meeting in Melbourne for which he and **Gary Fitt** had organised a pest management theme.

David Merritt visited the Gunung Mulu National Park in Sarawak, Borneo, in April where the Australasian Cave and Karst Management Association held its annual general meeting. A feature of the caving trips was the cave fauna of swiftlets, bats and their associated guano fauna. Immediately after the trip, Dave and biospeleologist colleague **Arthur Clarke** wrote an article for the ACKMA journal titled "Non-glowing sticky worms and glowing centipedes: observations on Gunung Mulu cave fauna". Work on glow-worms continues in the Merritt lab and **Rebecca Morley** was recently awarded first-class Honours for her project on the effect of light on bioluminescence in the glow-worm *Arachnacampa flava*. Bec is now finishing off some data collection for her study with **Justin Marshall's** lab in the Queensland Brain Institute.

The University of Queensland has joined iTunesU and, with some reluctance, **Dave Merritt** has been persuaded to place a movie file for all to see. The movie is a demonstration video for the course "Insect Structure Function and Physiology" showing students the basics of how to do an insect dissection. **Bec Morley** made and edited the video. The course, run for the first time in semester 1 of this year, is part of the Entomology Curriculum Australia that has received support from the society.

Kayvan Etebarian and **Balachandran Jayachandran** have started their PhD candidates with **Sassan Asgari** working on "the role of maternal factors in Diamondback moth and *Diadegma semiclausum* host-parasitoid system" and "investigating involvement of microRNAs in *Helicoverpa armigera* development and anti-viral responses", respectively. **Sassan** and **Karyn Johnson** have edited a book entitled "Insect Virology", which will be available in September 2010.

Penny Mills, **Paul Lin** and **Lyn Cook** attended the International Symposium of Scale Insect Studies held in Crete in April. This three-yearly event brings together coccidologists from around the world. Topics cover all aspects of scale insect biology, with contributions this year covering ecology, life-histories, biocontrol, genetics, palaeontology and systematics.

The excursion was a treat – a local pine forest with heavy infestations of *Marchalina hellenica*, a scale insect that produces such copious quantities of honeydew that it supports the islands entire honey industry. Penny has also been undertaking fieldwork in NSW, trying to collect some of her elusive beasties – Apiomorpha minor. Meanwhile, **Andy Wang** has been studying the systematics of one of the critters that keeps Penny's beasties in check. Andy has been working on the pteromalid wasp *Cameronella*, which is specific to adult females of Apiomorpha, as a major project for his MSc course.

Beth McGraw has been awarded a Smart Futures Fellowship from the Qld state government. Beth will be continuing her research on using bacterial endosymbionts to control the transmission of dengue by mosquitoes.

Undergraduate students in the Insect Diversity and Evolution course, coordinated by **Lyn Cook**, conducted an insect survey of Mt Mee National Park for Queensland Parks and Wildlife under the guidance of **Shaun Winterton** and **Gunter Maywald**. The students' report has been presented to park rangers and will contribute to an understanding of insect biodiversity at the site. Shaun has now left UQ and returned to the Governator's domain (CA, USA).

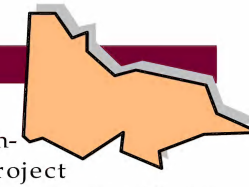
Queensland University of Technology

Not a lot of new stuff from QUT since the last update. **Mark Schutze** continues his stay in Austria, which has been extended from six months to 12 months. **Tony Clarke** has been very busy coordinating QUT's input into the rebid case for the proposed Plant Biosecurity CRC, but is looking forward to European travel in the next quarter to fruit fly meetings in Austria and Spain, as well as catching up with European colleagues.

Amy Carmichael has left for six months maternity leave and, all being well, should have had her baby by the time this Myrmecia is published.

And finally, after talking about it for nearly two year, major physical lab renovations are about to begin on the Garden's Point campus of QUT. Our building will be chaotic for the next four months, but at the end of it we'll have new genetics, environmental chemistry, ecology and plant growth facilities, plus a dedicated insectary. Hallelujah!

Tony CLARKE/Jane ROYER
Qld Regional Councillors



VICTORIA

IPM Specialists

Cindy Edward is in the extension phase of the project "Integrated Pest Management for the Horse Farm". This project is funded by the Rural Industries Research and Development Corporation. The reliance of chemicals to control internal parasites of the horse has led to resistance. The project aims to develop a biological

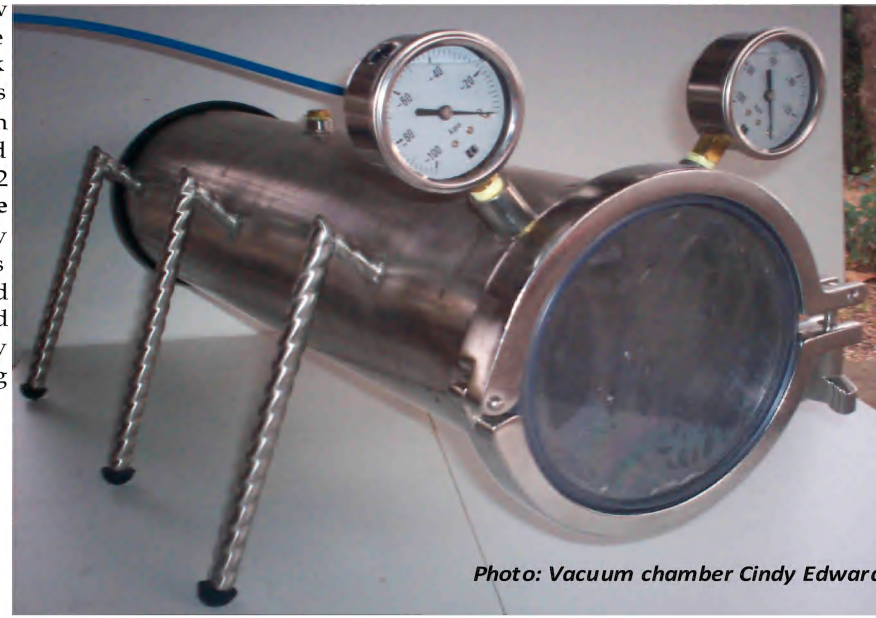


Photo: Vacuum chamber Cindy Edward

Photo Cockchafers Cindy

The project aims to develop a biological program program that integrates biological control, cultural control and chemical control to maintain a sustainable horse farm. Exotic summer and winter active dung beetle cultures have been introduced to six of the ten trial sites. Dung beetles destroy the parasite habitat by burying the dung lessening the parasite burden in the pasture. The burying of dung provides nutrients and aeration to the pasture. The monitoring of invertebrates in the horse pasture has found many other predating insects that habitat dung and pasture. Cockchafers have been found to be a major pasture pest of the horse pasture and integrated management packages are being established to control pest and parasite burdens. A vacuum chamber was required to vacuum out the bubbles of the setting resin. John Pain and Camel from HiPex P/L undertook the task and made the "BeetleVac". It's not just an amusing piece of sculpture it works brilliantly (photo previous page).

DPI Victoria

In July, **Alan Yen** worked with **Daniel Burckhardt** at the Basel Natural History Museum in Switzerland preparing a diagnostic protocol for the tomato potato psyllid.

Piotr Trębicki has been running a number of experiments on aphid (*Rhopalosiphum padi*), looking at population dynamics and physiology under elevated carbon dioxide in the growth chambers and FACE facility in Horsham.

Piotr also attended the 11th International Plant Virus Epidemiology Symposium and 3rd Workshop of the Plant Virus Ecology Network at Cornell University where he was invited to talk. After the conference he travelled to University of Idaho where he spent a week in **Nilsa Bosque-Pérez'** lab.

Piotr TRĘBICKI
Victoria Regional Councillor

Photo Piotr Trębicki and Nilsa Bosque-Pérez enjoying cold drinks during conference dinner in winery near Ithaca, USA.

WESTERN AUSTRALIA

DAFWA, South Perth

Learning about the grain supply chain: from storage to export

On May 18 , scientists from UWA and DAFWA travelled to Western Australia's farm grain storages in Northam and export facilities at York and Forrestfield.

The trip was organised by Maria Majer and Rob Emery. Michelle Chami, Chris Newman (DAFWA), were joined by Mingren Shi, Michael Renton, Juan Garcia Adeva and James Bennett (UWA) who are developing computer simulation models to predict the establishment or spread of invasive plant pests.

The trip was a great opportunity to be far away from desks and computers on a beautiful sunny day. The group's first stop was Forrestfield where everyone was impressed by the CBH Group's Metro Grain Centre facilities. Phil Taylor from CBH explained how his colleagues are working with growers to protect Western Australia's international reputation for high quality grain.

From Forrestfield, the group continued to Northam to visit farm silos where Chris Newman outlined the importance of properly sealed silos to allow for effective fumigation. Rob Emery briefed the group on phosphine fumigation and the problem of insect pests of grain storage evolving phosphine resistance.

The insects observed on the day were the rust red flour beetle (*Tribolium castaneum*), the saw toothed grain beetle (*Oryzaephilus surinamensis*) and some beetle larvae.

The group continued the field day at the CBH York grain receival point where they continued to explore the facilities and equipment such as the conveyor loading system, the bulk storage capacity, handling and transport system.

This initiative followed the grain supply chain and was a very positive interaction for members across several CRC projects. Activities such as this demonstrate the benefits of collaborative networks created as part of the CRCNPB.

Rob Emery demonstrates how to sieve insects from stored grain. From (L-R) Chris Newman, Michael Renton and Mingren Shi look on.

Surveillance platform technology for predicting spread of EPPs.

Australia faces a significant challenge to minimise the entry, establishment and spread of emergency plant pests (high priority pests) that could affect agriculture production, market access and the environment. An outbreak could have a serious economic and environmental impact. For example Queensland fruit fly damages host fruit, reducing fruit quality and rendering it unmarketable. Can we afford to lose a market that can generate more than $1 billion? What do we need? We need a tool to predict after an invasive pest is detected in an area, their establishment and how far and the speed of the spread. On 12 July, The Department of Agriculture and Food (DAFWA) held the CRC NPB "The economic and ecological model node" meeting organized by **Maria (Maze) Majer** (DAFWA) and Rohan Sadler (UWA).

The meeting was organised to allow people working on collaborative projects between UWA, the Cooperative Research Centre for National Plant Biosecurity and DAFWA to meet. **Maria Majer** is working on the CRC project "Simulation Surveillance Platform" with **Juan Garcia Adeva** (UWA), to develop a computer simulation model to predict the establishment and spread of invasive plant pests. **Rohan Sadler** (UWA, School of Agricultural and Resource Economics), is working on modelling the benefit cost analysis of market specification and technology options. Rohan also supervises **Veronique Florec** (UWA) on "Cost elements of Qfly surveillance network as part of regional BCA' and **Hora Abougamos** on "Spatial elements of the economics of pest control in grain logistic chains". **James Bennett** (UWA) is working on "A system for rapid characterisation of new invading organisms" that will provide timely information about their biology and spread potential, and guide a quick appropriate response with **Michael Renton,** also from UWA. Michael Renton is supervising PhD students **David Savage** working on "Anisotropic Kernel for rapid prediction of wind-assisted dispersal of fungal pathogens" and **Mingreen Shi**. **Nichole Hammond** (DAFWA) presented her PhD research on "Evaluation of plant pathogen surveillance and surveillance tools: demonstrating freedom from *Tilletia indica* in WA".

Back row: Michael Renton, David Savage, Mingren Shi, James Bennett, Juan J. Garcia-Adeva and James Ridsdill-Smith. Front row: Rohan Sadler, Monique Florec, Maria Majer, Moin Salam and Nichole Hammond. (Photo M. Majer)

From left: John Botha (DAFWA), James Ridsdill-Smith (CRC NPB), Maria Majer (Maze) (DAFWA) and Rohan Sadler (UWA). (Photo M. Majer)

From left: Mingren Shi (UWA), James Bennett (UWA), Juan J. Garcia-Adeva (UWA), David Savage (UWA) and Moin Salam (DAFWA). (Photo M. Majer)

Bill Woods, **John Botha**, **Marc Widmer**, **Rose Fogliani**, and from plant pathology, **Bill MacLeod** and **Moin Salam** and **James Ridsdill-Smith,** Principal Scientist, CRC National Plant Biosecurity, also attended the meeting. The interaction of the groups was very positive and provided an excellent opportunity to network.
Maria MAJER

Sonya Broughton and **David Cousins** continue their work on western flower thrips. Recently Dave and Sonya tested new thrips pheromones produced by PheroBank and Thripline by Syngenta in stone and pome fruit orchards. The addition of semiochemicals to sticky traps significantly increased the capture of *F. occidentalis* by 2- 9 times. Trials are now underway in protected strawberry crops.

Sonya Broughton with a thrips lure. The lures are being trialled in protected strawberry. (Photo S. Broughton)

The University of Western Australia, School of Animal Biology

Congratulations to **Touhid Rahman,** who received his PhD in July. The title of Touhid's thesis was "Interaction between natural enemies and insecticides used for the management of Western Flower Thrips, *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae) in three cultivars of strawberry, *Fragaria* X *ananassa* Duchesne (Rosaceae)". Touhid was jointly supervised by **Helen Spafford** (formerly from UWA now at the University of Hawaii) and **Sonya Broughton** (DAFWA).

Brown sowthistle aphid (*Uroleucon sonchi*). (Photo: P. Scanlon)

Curtin University

Cameron Brumley has finished his honours thesis titled "The assessment of host preferences of the Brown sowthistle aphid (*Uroleucon sonchi*) on lettuce grown in Western Australia". Cameron was supervised by **Jonathan Majer** and **Sonya Broughton** (DAFWA). Cameron also received a scholarship from the CRC for Plant Biosecurity. Cameron found that *U. sonchi* which is considered to be a pest of lettuce, performed poorly on lettuce cultivars compared to *Sonchus oleraceus*.

NEW SOUTH WALES

Industry & Investment NSW, Orange Agricultural Institute

Two PhD students have arrived from the Northwest Agriculture and Forestry University to spend 12 months working under the supervision of **Murray Fletcher**. They will return to China to complete their theses after their year in Australia and graduate from NWAFU. **Peng Lingfei** is working on the planthopper family Flatidae of China and SE Asia and **Liu Yang** is studying the microleafhoppers of the genus *Empoasca* which includes one Australian species but which is widespread across the Pacific and Oriental regions. They are being jointly supervised by Prof. **Zhang Yalin** of NWAFU and both have taken to the Australian way of life with enthusiasm, particularly since the house they are renting at OAI is surrounded each

morning either by parrots, sheep or kangaroos.

Murray Fletcher has just returned from three weeks in France which included a visit to the Museum National d'Histoire Naturelles in Paris (MNHN) and attending the 13th International Auchenorrhyncha Congress and 6th International Workshop on Leafhoppers and Planthoppers of Economic Importance at Vaison la Romaine (which is actually quite close to Orange!). Murray retired as Chairman of the Standing Committee for these congresses and was replaced by Thierry Bourgoin of the MNHN. Murray presented a paper on the taxonomy of the lophopid planthopper genus *Zophiuma* jointly authored with **Geoff Gurr**, **Catherine Gitau** and **Andrew Mitchell** and presented a poster on behalf of **Linda Semeraro** and Andrew Mitchell on progress on Linda's PhD project on the leafhopper subfamily Macropsinae in Australia. Australia was also represented by **Anna Rathe** from Gosford who presented a paper on her PhD project on biosecurity preparedness for the Glassy Winged Sharpshooter.

One highlight of the congress was a visit to the house and garden formerly occupied by Jean Henri Fabre which has now been turned into a museum. Pictures of the congress, including the visit to Fabre's museum, are available on the Tymbal website at http://www.tymbal.org/france2010.htm. The next congress is planned for NWAFU, Yangling, China in 2013 and three years later, the congress will go to Brazil.

Peter Gillespie's DAFF scholarship has been put on temporary hold by the department following cancellation of his travel plans. Peter originally planned to visit Thailand and then the United Kingdom to work with **Jon Martin** on Aleyrodidae but the trip was postponed due to political unrest in Thailand combined with volcanic ash clouds from Iceland. Peter is disappointed not only that he has had to postpone his trip but also that this creates extra paperwork since he has to reapply for approval to travel overseas.

Industry & Investment NSW, EMAI

Grant Herron, Senior Research Scientist, is a finalists in the 2010 Australian Cotton Industry Awards, CSD Researcher of the Year, to be announced on 12 August as part of the Cotton Conference.

Grant participated in a workshop at Macquarie University on the 22nd June to evaluate the "What Bug is That" web site to provide feedback to CSIRO on how to improve it. Grant attended a 2 day IPM meeting at the HAL head office in Sydney on the 24-25th June. At that meeting Grant was informed that HAL (vegetables) would probably not be funding any new studies until 2012.

University of Sydney

Sarah Mansfield attended the same workshop as Grant to evaluate "What Bug is That".

Paul Gende, from the Cocoa Coconut Institute of Papua New Guinea has joined the Agricultural Entomology group as a Masters student. He is supported by a John Allwright Fellowship from ACIAR and will study host plant effects on oviposition and survival of cocoa pod borer.

Mike Wilson (UK), Steve Wilson (USA), Herbert Nickel (Germany) and Murray Fletcher (Australia) [photo: Werner Holzinger]

University of Western Sydney

Tara Murray has recently take up a postdoctoral fellowship at the Centre for Plants and the Environment at UWS Hawkesbury Campus. Tara completed her PhD in 2009 with Lincoln University and Scion (NZFRI) in New Zealand where she worked with the Eucalypt pest *Paropsis charybdis*, studying how the biology and behaviour of several of its egg parasitoids can influence the outcomes of laboratory host specificity tests and also how they interact to affect biological control of *P. charybdis* in the field. In her new position Tara will be working with **Markus Riegler** and utilising the Hawkesbury Forest Experiment (HFE) to investigate how insect communities on eucalypts will react to future climate change such as increased atmospheric CO2, temperature and drought events.

Murray FLETCHER/Sarah MANSFIELD
NSW Regional Councillors

Building of a $57 million State government investment to build new QC2 and QC3 laboratories progresses well with the concrete floor already mainly in place. Inspecting the new site with site managers from EMAI yesterday was the department's Plant Biosecurity Steering Group: L to R Christine Stone, Barry Kay (EMAI), Alison Seyb, Kathy Gott, Deb Hailstones, Shane Hetherington, Satendra Kumar, David Hall, Tony McCabe (EMAI), Murray Fletcher and Jono Gregory (EMAI)

THE POSTGRAD PATCH

Is postgrad research worth anything? To anyone??

Hold your horses...news hot off the press. James Cook University does not consider postgrad research to be of any value. Straight from the mouth of a small, beige-wearing male, who is employed full-time by the University. OK, he is a maintenance guy, but nonetheless, he is employed full-time at JCU, and I am not, and I am unlikely to be in the near future. Let me start from the beginning.

I was in my office helping a fellow researcher figure out how to calculate a mysterious 'Q' Value. The office door was thrust open and in walked two people, one of whom was the small, beige-wearing maintenance guy. The background is a little complex, but the upshot of it all is that I had requested a blind be installed on the office window for privacy. His response was 'Your job here doesn't warrant that, you are just studying here'.

At first, I was a little taken aback, but once I got over my initial offence and mulled over that little gem for a bit, I started to get concerned. Is there a culture among non-academic JCU staff who are of the belief that students are just a 'pain in the proverbial'?

So I began to wonder what a PhD is actually worth to a university. First, I made a list of what I see to be the most obvious contributions.

1. Postgraduate research is EXTREMELY cheap labour. Someone cleaning toilets for a living earns more than the majority of postgrads. The small, beige-wearing male earns more than I do.
2. Postgrad research is relevant and adds significantly to the knowledge base.
3. Postgrads publish papers. The more papers published, the higher the uni's relative performance, and the more the university can claim from the Federal Governments research training funds. Hang on...don't we 'train' dogs?
4. Postgrads publish popular articles in local and national newspapers and magazines, promoting their research, findings and often, their university.
5. Postgrads teach. A postgrad clamouring for cash and experience will usually put both hands up to demonstrate and lecture. Perfect position to encourage undergrads to consider further study.
6. Postgrads mark papers and assignments. Cheaper than the academic supposed to be doing it (!).
7. Postgrads promote their university. Activities such as wandering around a small community with a sweep net at the ready, or darting possums in the rainforest whilst clinging to a tree, usually piques the interest of passing people. Perfect opportunity to publicise your research, and the university.
8. Postgrads take part in open days and visit schools for free. To promote the university.
9. Postgrads are worth money to their university. AND the more completions the uni has, the higher that uni's relative performance, and the greater the money awarded from the Federal pie.

Given 1-9, I figure that postgrads are clearly invaluable to JCU. So small beige-wearing man and his comment are of little consequence. But what about the rest of the staff? What does our Vice-Chancellor, Professor Sandra Harding think? I asked her for her thoughts, but as of this articles submission date, she had not replied. I like to think she is taking her time in considering her response, as opposed to not giving a rats like small, beige-wearing maintenance guy. I'm confident that Professor Harding values postgrad research as highly as I do.

However, as I dug deeper into the abyss, I realised the problem doesn't seem to be how valuable I, or even a Vice-Chancellor thinks postgrad research is, but how valuable the Federal Government thinks postgrad research is. From what I can gather, despite their relative performance, universities are stymied to a certain degree by the amount of money that the Feds make available through its research 'education' funds (which includes the Research Training Scheme). Apparently that amount was around $795 million this year, which sounds a lot. But divvied up between all Australian Universities, it isn't so much.

Part of that $795 million funds PhD scholarships. The most common scholarship around seems to be the Federally funded APA. This year, the Feds increased the APA stipend by 10% (which is what they called a 'significant amount') to $22,500 per annum. Whoopee-do! The 10% increase was 'as budget permitted'. Well, last year the Feds budget permitted that unprecedented waste of tax-payers hard-earned cash that was the Rudd Government's $42 BILLION Federal Nation Building - Economic Infamous...I mean...Stimulus...Plan. Just think how many more percentage increments postgrad stipends could have been raised with even just 1% of that cash?

The average PhD stipend in Australia is a joke. Cut the violins thanks. What I say is true. The minimum annual wage in Australia is around $29,634 per annum ($569.90 per week) before tax. An industry scholarship may be about $26,000, then there are the APAI's, which might be around $29K. Some smart universities are offering a top up of the APA so the total scholarship might come to about $34,000 tax free. Now we are talking! But, for most postgrads, their APA stipend is below the minimum wage in this country. If a business pays below the minimum wage, they are breaking the law. Clearly the law doesn't apply to the Feds in the case of APA's!! That, my friends, is a sad reflection of how low the Feds value postgrad research in this country.

If I had stuck out my old job, I'd be on $62,403 per annum, and even after tax still be earning almost double my current stipend. The starting salary at that level, Department Agriculture Fisheries Forestry (DAFF) level 4, is currently $57,492 and comes with a guaranteed pay-raise each year, paid maternity leave, recreational holidays, sick leave, superannuation, lots of solitaire etc. A degree is usually a prerequisite. Why would you bother doing postgrad studies when you can pretty much walk straight out of your undergrad degree into a job that pays that much?

Well, most postgrads I know are go-getters, meaning that for them, money is not the primary driver for undertaking further study. Also, working for the public service ain't all that (if you want to become more than either a biro pilot or a paper pushing pi*p, then don't go there). Importantly, the median age of Australian postgrads is around 34. By that age, many people have dependents to support, and perhaps a mortgage to pay off. The biggest hurdle during the 'PhD or not' decision making process may be the financial one. Nobody can afford to keep a couple of kids in school and pay off the house (and if you are single, let alone rent a one bedroom unit and eat anything other than home-brand!) on a postgrad scholarship. So given the status quo, is postgrad research worth anything? To anyone?? Hell yeah! To us! To the people wanting to make a difference!

The Feds 'say' postgrad research is worth something to them too, but their actions to date fail to prove it. They say they want to increase the research workforce, fill the gap, encourage mobility, increase quality and quantity, supply researchers, support career progression, prioritise the action and implement the research workforce strategy. All they have done is write a paper to ask other people what they think about it, minutely raised the APA, and committed to doubling the number of APA's by 2012. Question is, if you double the number of APA's, will that also double the completions? Doubt it.

What the Feds need to do is make postgrad research a more attractive option in the first place, and make it attractive enough to complete. Money talks. So Feds, stop pussy-footing around and COUGH UP THE CASH! My policy suggestion for Gillard vs Abbott in the current stoush. All new Higher Degree by Research places will come with $35,000 tax free stipend in the first year. AND, they will come with a 4.5% increase each year of study, up to 4 years, if each milestone is successfully passed.

What then? Recently completed postgrads currently represent a fairly ignored and untapped source of knowledge, with the potential to make real contributions in their fields given the appropriate opportunities. But, phew, the 'what then' is another artide, and I'm done for now. In the meantime, I shall keep my fingers crossed and gesticulate to the ball in the sky for positive change for postgrads. Oh, and in the absence of Professor Hardings comment, I shall make my own statement: I believe that JCU highly values postgrad research.

Kylie ANDERSON

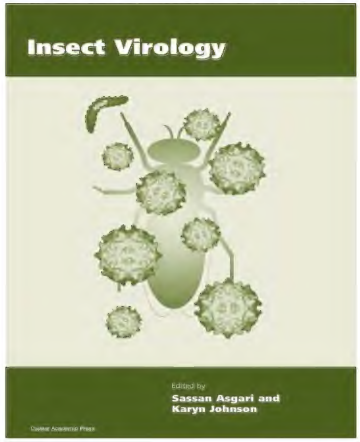
Contact: If you feel the need to refute/add to any of the above, please drop me a line at kylie.anderson1@jcu.edu.au.

Conference: Get cracking on those presentations for the upcoming Conference students! By now, you should have registered and submitted your abstract. As David mentioned, we are also organising a skills development workshop on Thursday morning. If you didn't book in for either the workshop or the student dinner, let Sally know at sally.brown@uq.net.au. See you all there!

NEW PUBLICATIONS

Insect Virology

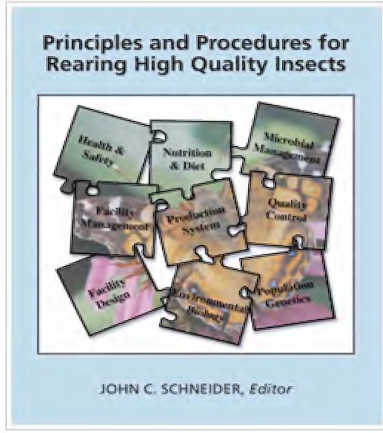
Sassan Asgari and Karyn N. Johnson
Caister Academic Press; September 2010.
Cost: GB £180 or US $350 (hardback)



This timely book reviews the exciting new developments in the field of insect virology. Written by internationally renowned insect virologists, chapters cover all of the major groups of insect pathogenic viruses and suggest future directions for research. The book is divided into three parts: 1) DNA viruses 2) RNA viruses and 3) current hot-topics in insect virology. Virus groups covered include: Ascoviruses, Baculoviruses, Densoviruses, Entomopoxviruses, Hytrosaviruses, Iridoviruses, Nudiviruses, Polydnaviruses, Dicistroviruses, Iflaviruses, Nodaviruses, Tetraviruses and Cypoviruses.
The special topics chapters review exciting recent developments in insect virology including RNAi, insect antiviral responses, structural comparison of insect RNA viruses, and viral ecology. The book is essential reading for every insect virologist in both the academic and private sectors. It is also strongly recommended for other virologists, particularly those interested in virus evolution, virus structure, viral vectors, biological control of insects and insect immunity. Further details can be found at http://www.horizonpress.com/insect-virology

Principles and Procedures for Rearing High Quality Insects

John C. Schneider, Editor
Department of Entomology and Plant Pathology, Mississippi State University (2009)
Cost: $69.95 (USD) + Shipping and handling via USPS, order at https://www.irc.entomology.msstate.edu



This book consists of 11 chapters, concentrating on medium scale rearing of insects using artificial diets. According to a review by J. H. Frank (Entomology & Nematology Dept. University of Florida), it is relevant to industrial-scale rearing and even for trouble-shooting in small-scale (tabletop) rearing. The book is recommended for entomologists involved with insect rearing.

ENTOMOLOGY IN THE NEWS

Female* Aedes aegypti *mosquito (Photo James Gathany, PD-USGov-HHS).

Inherited insensitivity enables mosquitoes to overcome the repellent barrier of DEET

17 May 2010

Mosquitoes that are able to overcome DEET, a highly effective repellent, are able to pass this ability onto their offspring.

In the laboratory, researchers from Rothamsted examined the number of Yellow Fever mosquitoes (*Aedes aegypti*) that were attracted to a DEET-treated arm. The small proportion of female mosquitoes that landed and attempted to feed on the arm, despite the presence of the repellent, were chosen and bred with male mosquitoes of unknown sensitivity.

Within the first generation, the number of mosquitoes showing this DEET-insensitivity rose from 13 percent to more than 50 percent, proving that the trait was heritable.

"Once we had mosquitoes that could ignore DEET, we wanted to know how they were able to do this, so we investigated their sense of smell by attaching microelectrodes to the mosquito's antenna" said Ms Nina Stanczyk, who completed this work as part of her PhD at Rothamsted. "

"DEET, which has been used for more than 60 years, is a man-made chemical so it is interesting that mosquitoes are able to detect it in the first place", says Ms Stanczyk. However, the authors also showed that the receptors that respond to DEET respond to chemicals from plants that have been shown to be repellent. "So, it is possible that DEET could be acting on the same mechanism, and this is why it works as a repellent".

Although mosquitoes are known for their ability to develop resistance to insecticides, this is the first demonstration that they can evolve resistance to chemicals intended to modify their behaviour. According to co-author Dr James Logan, leading researcher and medical entomologist at Rothamsted, there is growing interest in the use of repellents for control of mosquitoes that transmit disease. He concludes "if we are ever to use repellents on a large scale it is important that we understand how mosquitoes can overcome this effective barrier".

Story Source: http://www.rothamsted.ac.uk/Research/Centres/PressReleases.php?PRID

'Balanced' Ecosystems Seen in Organic Agriculture Better at Controlling Pests

1 July 2010

Washington State University researchers have found that more balanced animal and plant communities typical of organic farms work better at fighting pests and growing a better plant.

The researchers looked at insect pests and their natural enemies in potatoes and found organic crops had more balanced insect populations in which no one species of insect has a chance to dominate. And in test plots, the crops with the more balanced insect populations grew better.

"I think 'balance' is a good term," says David Crowder, a post-doctorate research associate in entomology at Washington State University. "When the species are balanced, at least in our experiments, they're able to fulfill their roles in a more harmonious fashion."

Conservation efforts typically concentrate on species richness -- the number of individual species -- or the loss of individual species. Crowder's paper is one of only a few to address

the issue of balance. It is the first the first to look at animal and fungal communities and at multiple points in the food chain.

The researchers say their results strengthen the argument that both richness and evenness need to be considered in restoring an ecosystem. The paper also highlights insect predator and prey relationships at a time when the potato industry and large French fry customers like McDonald's and Wendy's are being pushed to consider the ecological sustainability of different pest-control practices.

Conventional pest-management on farms often leads to biological communities dominated by a few species. Looking at conventional and organic potato farms in central Washington State's Columbia Basin, Crowder found that the evenness of natural pests differed drastically between the two types of farms. In the conventional fields, one species might account for four out of five insects. In the organic fields, the most abundant species accounted for as little as 38 percent of a field's insect predators and enemies.

Using field enclosures on Washington State University's Pullman campus, Crowder recreated those conditions using potato plants, Colorado potato beetles, four insect species and three soil pathogens that attack the beetles. When the predators and pathogens had similar numbers, says Crowder, "we would get significantly less potato beetles at the end of the experiment."

"In turn," he adds, "we'd get bigger plants."

Crowder says he is unsure why species evenness was lower in conventional crops. It could be from different types of fertilization or from insecticides killing some natural enemies more than others.

Story Source: http://www.sciencedaily.com/releases/2010/06/100630132752.htm

COMING EVENTS: AUSTRALIA 2010

AUSTRALIAN ENTOMOLOGICAL SOCIETY'S 41st AGM & SCIENTIFIC CONFERENCE

Entomology for Australia's Future

September 26-30 2010

Perth, WA

The Organizing Committee, Sonya Broughton, Modika Perera, Maria José de Sousa Majer and Jonathan Majer invite you to the 41st AGM and Scientific Conference, which will take place at the Vines Resort in the Swan Valley, just north of Perth.

Notification of acceptance of abstracts 31 July 2010

Abstracts due by 26 July 2010

Early registration closes 25 August 2010

Conference starts 26 SEPTEMBER 2010

For more information visit

http://www.aes2010.org/

6-10 December 2010

Canberra, ACT

'Sustaining biodiversity – the next 50 years'

The 50th anniversary of the founding of the Ecological Society of Australia provides a timely platform for retrospective and prospective, considerations of ecology in Australia. A series of themes will focus on the challenges that will be faced by Australian ecosystems over the next 50 years, and the way that our science will need to adapt to meet these challenges.

We will take a long term perspective of ecology in Australia and engender a sense of urgency to consider how ecologists can provide solutions to those problems with which we are now familiar, and those on the horizon.

Call for abstracts closes 30 July 2010.
For more information visit
http://www.esa2010.org.au/

17th AUSTRALASIAN WEEDS CONFERENCE

New Frontiers in New Zealand
Christchurch, New Zealand
26 - 30 September 2010

The conference will now feature a special workshop on Invasive Plant/Weed Diagnostics: Current and Future Trends in Identification, Taxonomy and Genetics.
For more information:
www.17awc.org/index.php

BIOLOGICAL CONTROL FOR NATURE CONFERENCE

3-7 October 2010
Northampton, Massachusetts, USA
Biological control of pests in forests and associated habitats

This meeting explores the benefits of classical biological control for the control of invasive insects and plants in natural forests, and associated habitats such as wetlands, grasslands, and deserts. Applications to islands and other natural systems will also be included. The meeting will not address other forms of biological control (e.g., augmentation, conservation, biopesticides), nor will it address use of biological control in plantation forestry. The meeting will appeal to biological control scientists, conservationists, invasion biologists, and land managers.

Email: MHoddle@ucr.edu.
Phone: 1-951-827-4714. www.biocontrolfornature.ucr.edu

COMING EVENTS: OVERSEAS 2010

ENTOMOLOGICAL SOCIETIES OF CANADA AND BRITISH COLUMBIA JOINT ANNUAL

31 October - 3 November 2010
Vancouver, BC, CANADA

The 2010 JAM will take place at the Coast Plaza Hotel in Vancouver. The meeting theme will be "Communication".
www.sfu.ca/biology/esbc/meetings.html

ENTOMOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING

12-25 December 2010
San Diego, CALIFORNIA, USA

The ESA is holding it's 58th Annual Meeting in San Diego, California. The theme of the meeting is Entodiversity: Disciplinary, Biological, Geographical.

To keep in mind for next year's conference since the submission site closed on July 2nd.
If travel funds, visas, or other barriers prevent you from attending the largest research-focused conference on entomology in the world, ESA offers you an exciting new technology where you can still present your work and reach thousands of entomologists. It's called 'Virtual Posters'.
You submit your presentation on line, and during the meeting interested attendees view your research and ask you questions. It's that easy. And it's a great opportunity to be cited, and to build your worldwide network.
Virtual Posters are only offered to individuals located outside of North America.

To learn more, visit www.entsoc.org/am/cm/submit/virtualposters.htm <http://www.entsoc.org/am/cm/submit/virtualposters.htm> .

For general information on ESA, visit www.entsoc.org <http://www.entsoc.org> .

2011

ACPP APPS DARWIN 2011
New Frontiers in Plant Pathology for Asia and Oceania
26-29 APRIL 2011 • DARWIN CONVENTION CENTRE • DARWIN, NT

4th ASIAN CONFERENCE ON PLANT PATHO LOGY & 18th BIENNIAL AUSTRALASIAN PLANT PATHOLOGY

26-29 April 2011
Darwin, NT, AUSTRALIA
"New Frontiers in Plant Pathology for Asia and Oceania"

Info: Conference Logistics, PO Box 6150, Kingston, ACT 2604, AUSTRALIA.
Fax: 61-2-6285-1336.
Voice: 61-2-6281-6624.
Conference@conlog.com.au.
www.appc2011.org.
This inaugural joint conference brings together the Asian Association of Societies for Plant Pathology (AASPP) and the Australasian Plant Pathology Society (APPS). The conference theme is "New Frontiers in Plant Pathology for Asia and Oceania" where delegates will be representing the Asia and Pacific region (including Australia and New Zealand). The joint conference provides an excellent opportunity to increase collaboration between neighbouring countries and share the latest scientific knowledge. Potential topics include biosecurity, leading edge bioinformatic tools, tropical horticultural and agricultural issues, education and extension. Special interest groups such as nematology, soilborne diseases, forestry, virology, to name are few, will be represented. The conference will be highlighted by local and international keynote speakers who have been invited to share their plant pathology experiences as well as educate our next generation plant pathologists.
Workshops will target current horticultural and agricultural issues, a mango orchard tour is "a must" for those involved in mango research. Educational workshops will also be included to assist upcoming students particularly those from developing countries.
The conference will be held at the Darwin Convention Centre, which is situated on our gorgeous natural harbour. A large exhibition area provides the opportunity for commercial participants to promote their products to a wide international audience.

SOC. FOR ECOLOGICAL RESTORATION INT. WORLD CONF. ON ECOLOGICAL RESTORATION

August 21-25 2011
Yucatán, MEXICO
www.ser2011.org/en/

7th INTERNATIONAL IPM SYMPOSIUM

27-29 March 2012
Memphis, TN, USA.
"Integrated Pest Management, or IPM, is a long-standing, science-based, decision-making process that identifies and reduces risks from pests and pest management related strategies. It coordinates the use of pest biology, environmental information, and available technology to prevent unacceptable levels of pest damage by the most economical means, while posing the least possible risk to people, property, resources, and the environment. IPM provides an effective strategy for managing pests in all arenas from developed residential and public areas to wild lands. IPM serves as an umbrella to provide an effective, all encompassing, low-risk approach to protect resources and people from pests." (IPM Roadmap, May 17, 2004)
Symposium sessions will address IPM across disciplines, internationally, in the market place, urban settings, greenhouses, and more.

Info: E. Wolff, Conferences & Institutes, OCE, 901 W. University Ave., Suite 101, Univ. of Illinois, Urbana, IL 61801, USA. Fax: 1-217-333-9561. Voice: 1-217-333-2880.
Wolff1@illinois.edu.
Further information: www.ipmcenters.org/ipmsymposium12/.

AUSTRALIAN GEOGRAPHIC SOCIETY: FUNDRAISER FOR INVERTEBRATES

The United Nations has designated 2010 the International Year of Biodiversity to help celebrate all life on Earth. With this in mind, AGS is holding a *Biodiversity Appeal* to raise money to assist projects that are studying the world's forgotten life forms, the hidden creatures that are often overlooked in mainstream conservation causes – the invertebrates. Over 65% of the described species in Australia are invertebrates and it is thought that invertebrates may make up between 95-99% of animals on the planet. Australia is a megadiverse country and one of AGS goals is to help sustain that biodiversity.

Each year in conjunction with Australian Geographic Retail stores, AGS runs fundraising appeals for threatened species. These appeals are usually held on a quarterly basis running for three months each. Each appeal is publicised within an issue of the Australian Geographic Journal, through promotion on the Australian Geographic website and through over 50 Australian Geographic Retail stores around Australia. Each Australian Geographic store has a donation box and can also take donations through the register.

For the second quarter of this year AGS are attempting to raise the profile of invertebrates, instead of going for the usual warm and furry animals http://www.australiangeographic.com.au/society/fundraiser-invertebrates.htm).

The society is hoping to get the word out about some of the lesser known endangered species!

Funds from the Biodiversity Appeal will go to scientific research currently being undertaken by the Northern Territory Museum and Art Gallery, the Victorian National Parks Association and the Tasmanian Dept of Primary Industry, Parks, Water and Environment. These three institutions were selected because they submitted successful AGS research applications on threatened species projects.

You can make a donation in any AG Store, or send a cheque or money order to AGS, GPO Box 4088, Sydney, NSW 2001. Please write *Biodiversity Appeal* on the back of the envelope. There is also an online donation facility for people to donate via the Australian Geographic website (http://www.everydayhero.com.au/charity/donate/654).

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Her Excellency,
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Bugs for Bugs

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